

III. REMARKS

Please cancel claims 104, 112-113, 115, 123, 125 and 127-128 without prejudice, amend claims 102-103, 111, 114, 116-122, 124 and 126, and enter new claims 129-176 as set forth in the following listing of the claims.

In the Office Action, claims 112, 125, and 128 were rejected under 35 U.S.C. 112 as being indefinite for reasons set forth in the Action. Claims 102, 104, 107-111, 113-114, 116-121 and 126-127 were rejected under 35 U.S.C. 102 as being anticipated by Colby (WO 98/37699) for reasons set forth in the Action. Claims 122-123 and 125 were rejected under 35 U.S.C. 103 as being unpatentable over Colby, claim 128 was rejected under 35 U.S.C. 103 as being unpatentable over Colby in view of Chen (US 6040866), and claims 103, 105-106 and 124 were rejected under 35 U.S.C. 103 as being unpatentable over Colby in view of Schaar (US 6788740) for reasons set forth in the Office Action.

The claims have been amended to overcome the rejections under 35 U.S.C. 112, and to present subject matter that distinguishes the present invention from the teachings of the cited art. New claims are presented for further definition of the invention. This is believed to overcome the rejections under 35 U.S.C. 102 and 103 so as to present allowable subject matter in the claims, in view of the following argument.

The Applicant is of the view that the newly made amendments to the independent claims distinguish those claims patentably with respect to all of the documents cited in the present Official Action considered either singly or in combination. Thus, all dependent claims are similarly distinct from the cited prior art. Therefore, since the claim rejections under 35 U.S.C. 103(a) based on the combination of Colby et al. and van der Schaar relate to dependent claims only, no comments are provided on the combination of Colby et al. and van der Schaar.

Claim 128 has been cancelled without prejudice in the newly amended claim set. Since this was the only claim against which the combination of Colby et al. and Chen was used as a basis for a rejection under 35 U.S.C. 103(a), no comments are provided at this stage concerning the combination of Colby et al. with Chen.

With respect to the teachings of the cited art, Colby et al. relates to a system and method for encoding and decoding digitised audio / video files that prepares a slide show of still images and a low bit-rate audio stream which can be downloaded in real time over a typical connection to a computer network. The quality of the audio / video file is subsequently improved by downloading in successive passes the remaining video frames, which are restored to their original order, and the original high-quality content (see abstract).

In accordance with the teachings of Colby et al., in a first pass, a frame selector module selects individual frames from among all the frames comprising the video data stream. These frames are provided at the front end of a reconfigured audio / video (AV) file (PCT publication, page 3, lines 28 - 30). In subsequent passes, the remaining video frames are selected and assembled into the reconfigured AV file which is stored for delivery at a server site (page 3, line 31 to page 4, line 3). When a video clip is requested by a client, the server downloads the video data to the client according to the selectively re-ordered sequence. As the "front-loaded" portion of the new AV file is downloaded, the client is able to view a comprehensive audio / video slide show representative of the whole video (page 4, lines 3 - 7).

Once the slide show frames of the re-ordered AV file have been downloaded, the remaining video frames are downloaded in stages. The client software displays the front loaded data as a slide show during the download process and then re-sequences the front-loaded data and remaining video frames into the original order (page 4, lines 16 - 20). This makes it possible for the client's player to replay portions of the video clip as a low frame rate video during download. If all of the AV data is downloaded, the client

software can display the video in its original format and speed with the originally recorded audio quality (page 4, lines 20 - 23).

It should be noted that according to Colby et al. (page 6, lines 19 - 24), a slide show is defined as a sequence of visual images or frames presented as a slow-motion version of a video presentation or clip. A slide show may comprise a sequence of video frames taken from an original full motion audio / video file, re-arranged and adjusted in timing and sequence so as to make an attractive synchronised presentation. More specifically, in one embodiment the frames forming the slide show are selected I frames, for instance one I frame every two seconds (see PCT publication, page 15, lines 17 to 21). A second (separate) presentation time stamp (PTS) is assigned to each selected I frame within the slide show according to its order and timing within the slide show (page 16, lines 10 - 13). The second PTS makes it possible to vary when and how long each frame is displayed during the slide show.

Comments on Newly Amended Claims with Respect to Colby et al.:

Turning now to the present application, the independent claims have been amended to emphasise that the present invention relates to **"....streaming a data signal** over a transmission link from a server to a client for **streaming playback at the client...."** (see independent method claim 119, for example).

It should be noted that Colby et al. does not relate to streaming a data signal. While the front-loaded slide show portion of Colby's re-arranged AV file may indeed be displayed while other portions of the AV file are being downloaded, Colby's method is essentially a multi-pass approach to downloading an audio / visual file to a client for subsequent playback at the client. In other words, in the system presented by Colby et al., streaming of the original AV file is actually not possible due to the limited transmission bandwidth available. As acknowledged in Colby at page 4, lines 20 - 23, Colby's method simply makes it possible for the client to "replay portions of the video

clip as a low frame rate video during download". It is only subsequently, when all of the AV data has been downloaded that the client "can display the video in its original format and speed with the originally recorded audio quality". **This is not streaming.**

The newly amended independent claims also state that the data signal to be streamed comprises "a sequence of data units including primary data units and secondary data units, the primary and secondary data units **having a scheduled playback time for streaming playback at the client**".

The term "scheduled playback time for streaming playback at the client" is used in the claims to express the time at which each data unit of the data signal (primary or secondary) should be played back during streaming of the data signal. In particular, if all primary and secondary data units are received in time to be played back at their scheduled playback times, the quality of the signal played back at the client should correspond substantially with that of the data signal stored at the server (although some reduction in quality may still be apparent at the client due to the effect of possible transmission errors and / or interference).

In contrast, Colby makes no provisions for the in-time playback of video frames according to their originally assigned presentation time stamps (PTS).

It should also be emphasised that the terms "primary data units" and "secondary data units" as used in the claims, express the fact the data units comprised by the data signal are not all of equal importance. As explained on page 19 of the present application, between lines 25 and 29, the primary data units are, for example, vital to decode the bit-stream, while the secondary data units simply improve the quality of the bit-stream. In a video-related embodiment, where the primary data units are I and P frames and the secondary data units are, for example, B frames, failure of a primary frame to be received at its scheduled playback time will lead to a pause in playback,

since a primary data unit (I or P frame) cannot be discarded without also discarding all the frames predicted from it (page 27, lines 7 - 10).

All the newly amended independent claims state that the effect of the re-ordering of data units is to increase "the likelihood that a primary data unit will be received at the client in time to be played back at its scheduled playback time". As explained above, since the primary data units are typically more important for the continuity of playback than secondary data units, increasing the likelihood that a primary data unit will be received at the client in time to be played back at its scheduled playback time should reduce the number of pauses that occur during streaming playback.

In contrast, the objective of the re-ordering performed in the system of Colby et al. is not to reduce pausing during streaming playback, but rather to provide meaningful and entertaining audio / video data to a user in real time during downloading of an AV file (PCT publication, page 3, lines 14 - 21). Indeed, as previously explained, Colby makes no provisions for the in-time playback of each video frame. Discontinuity of playback and pausing are, in fact, inevitable and accepted features of Colby's downloading system. In particular, pauses / discontinuities inevitably occur during the slide show, which is made up of individual frames (still images) separated by comparatively large intervals of time, and therefore cannot create any illusion of motion. Pauses will also occur between and during successive playback passes.

Thus, Colby et al. does not contain any teaching relevant to improving the continuity of streaming playback, nor does it concern the reduction of pauses during streaming playback.

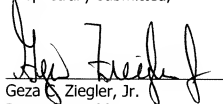
For all of the above reasons, the Applicant believes that the claims of the present application, as newly amended, are both novel and inventive compared with the teachings of Colby et al., and respectfully requests positive reconsideration of the application.

In view of the foregoing argument and amendments, it is urged that the foregoing rejections have been overcome so as to secure allowable subject matter in the independent claims and in their respective dependent claims.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment of \$1810.00 for the "RCE", three-month extension of time, as well as any other fees associated with this communication or credit any over payment to Deposit Account No. 16-1350. No additional fees are due for the new claims as the number of claims in each claims category does not exceed the fees previously paid. In the Amendment and RCE filed on 28 March 2005 the claims categories paid for included 67 total claims, and 8 independent claims. Thus, no new fees are due.

Respectfully submitted,



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13 July 2004
Date

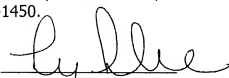
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